

**SYSTEMS AND METHODS FOR TERRESTRIAL REUSE OF CELLULAR
SATELLITE FREQUENCY SPECTRUM IN TIME-DIVISION DUPLEX
MODE**

Abstract of the Disclosure

A space-based component, such as a satellite, is configured to receive wireless communications from radiotelephones in a satellite footprint over an uplink satellite radiotelephone frequency, and to transmit wireless communications to the

5 radiotelephones over a downlink radiotelephone frequency. An ancillary terrestrial network, that may include one or more ancillary terrestrial components, is configured to transmit wireless communications to, and receive wireless communications from, the radiotelephones over the downlink satellite radiotelephone frequency in a time-division duplex mode. By terrestrially transmitting and receiving wireless

10 communications over the downlink satellite radiotelephone frequency in a time-division duplex mode, interference at the space-based component and/or at the gateway, by the ancillary terrestrial network and/or the radiotelephones due to terrestrial reuse of cellular satellite frequency spectrum, may be reduced or eliminated.

15